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Forest Service

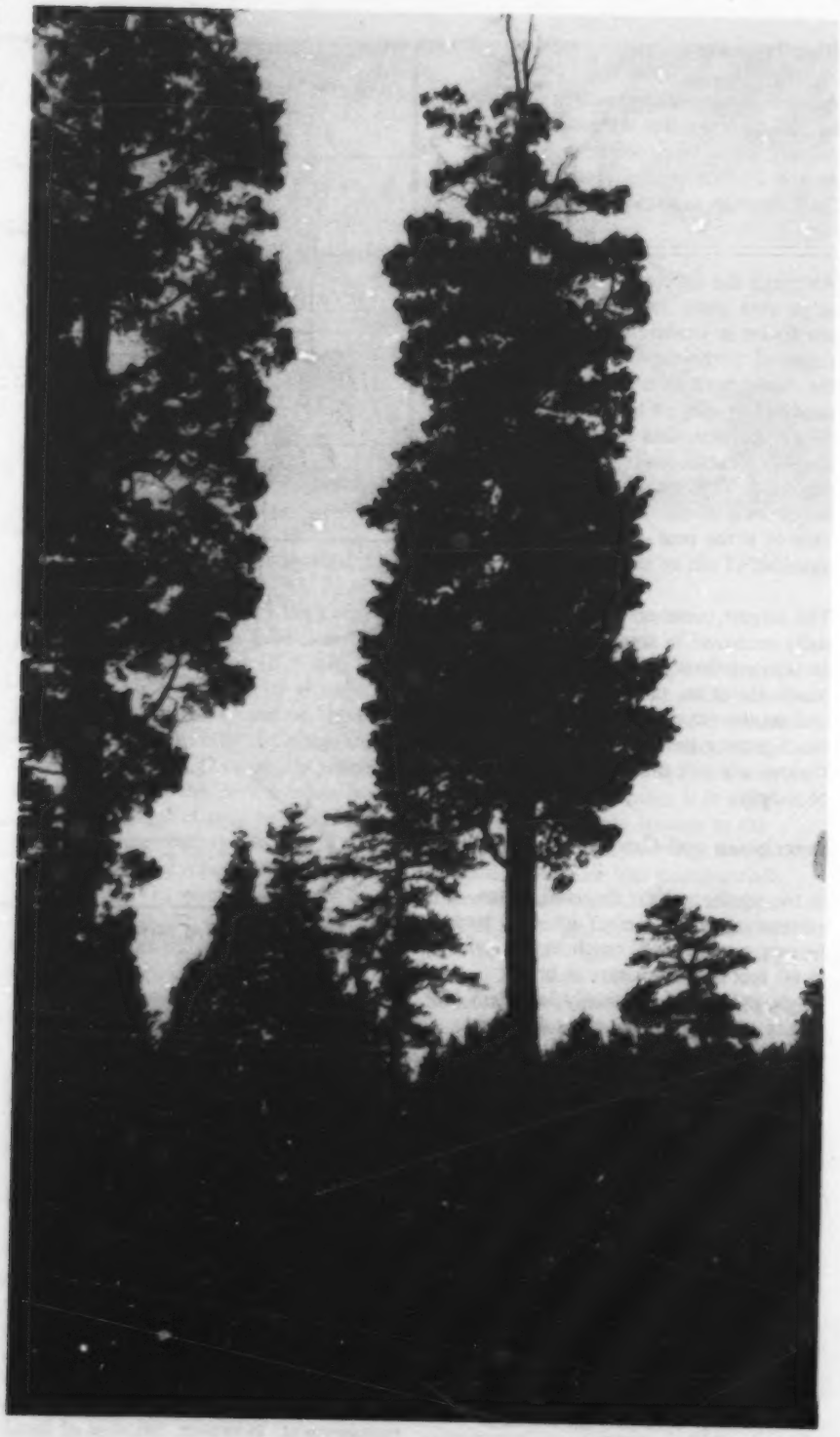
United States Department of Agriculture

FS-225

Atlantic White-Cedar

An American Wood

Atlantic white-cedar is a medium-sized tree that grows in scattered stands in the swamps along the eastern and southern coasts of the United States. The wood is light in weight, soft, low in strength, low in shrinkage, and durable in contact with the ground. Because of its limited production and changes in utilization practices, consumption of this species has declined and is now limited to a few specialty items.



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Atlantic White-Cedar

(Chamaecyparis thyoides (L.) B.S.P.)

James G. Schroeder[1] and Michael A. Taras[2]

Distribution

Atlantic white-cedar grows in a narrow belt 50 to 100 miles wide along the Atlantic coast from southern Maine to central Florida, and westward along the Gulf coast to southeastern Mississippi (fig. 1).

Although the species occurs over a large area, pure stands are small. They are found in scattered patches along the edges of freshwater swamps and along the sandy beds of small streams or on sandy plots subject to frequent overflow. The best sites are at low elevations on peat deposits, which are generally acid. This species is absent or uncommon where peat is underlain by clay or if the peat contains appreciable amounts of silt or clay.

The largest commercial stands originally occurred in southeastern New Jersey, southeastern Virginia, eastern North Carolina, northwestern Florida, and southwestern Alabama. Although much cutting has taken place, these regions are still the principal sources of supply.

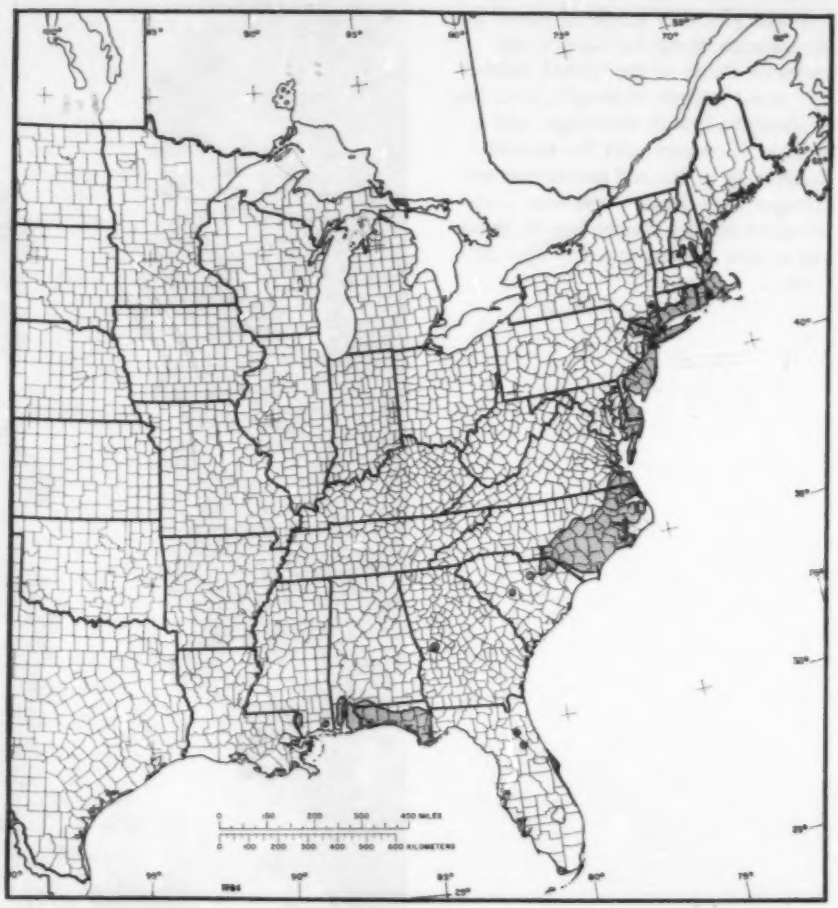

Figure 1—Natural range of Atlantic white-cedar.

Description and Growth

In the southern New England States, extreme southern New York, and New Jersey, mature trees reach heights of 40 to 60 feet and diameters at breast height (4½ feet) of usually less than 16 inches, although some trees 4 feet in diameter have been reported. Under optimum growing conditions in Virginia and North Carolina, trees reach a diameter of 9 to 11 inches and a height of 50 to 70 feet in 50 years. Mature trees in eastern South Carolina reach a maximum height of 120 feet and a diameter of 5 feet. In the southernmost part of its range in northwest Florida and southern Alabama, trees grow to a height of about 80 or 90 feet with diameters rarely larger than 24 inches. Atlantic white-cedar is a potentially long-lived tree. In fact, some are reported to have reached 1,000 years. In closed stands, however, 200 years is perhaps the maximum age.

Atlantic white-cedar tends to grow in pure, dense, even-aged stands known as "juniper or cedar glades," and therefore it lends itself readily to forest management. However, because of its great latitudinal range, it has been found growing with a number of other commercially important species. It grows with red maple (*Acer rubrum*) in all parts of its range; with blackgum (*Nyssa sylvatica*), yellow birch (*Betula alleghaniensis*), eastern white pine (*Pinus strobus*), and eastern hemlock (*Tsuga canadensis*) in New England; with blackgum, sweetbay (*Magnolia virginiana*), gray birch (*Betula populifolia*) and pitch pine (*Pinus rigida*) in southern New Jersey; and with pond pine (*Pinus serotina*), slash pine (*Pinus elliottii*), sweetbay, water tupelo (*Nyssa aquatica*), baldcypress (*Taxodium distichum*) swampbay

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(*Persea borbonia* var. *pubescens*), loblolly-bay (*Gordonia lasianthus*), and other swamp species in the South. It is reasonably tolerant of shade; however, neither seedlings nor mature trees can survive under a closed canopy for more than a few years. It is shallow-rooted and subject to windthrow, especially in partially open stands.

Reproduction is primarily through seeding though some sprouting occurs in heavily browsed seedlings and saplings. Atlantic white-cedar bears fruit at a relatively early age. Under favorable conditions, seedlings 3 years old bear mature cones. Natural reproduction starts at ages 4 to 5 years in open stands and 10 to 20 in dense stands. Seed is dispersed by wind and water.

Because of its thin bark and flammable leaves, Atlantic white-cedar is very susceptible to damage by fire (fig. 2).

Few fungi and insects attack this species, and those that do seldom cause serious damage.

The bole of a mature tree grown in dense stands is cylindrical, and generally clear of branches for about three-fourths of its length. The crown is small and narrowly conical, is composed of slender, horizontal branches, and has somewhat dropping branchlets. The leaves are mostly scalelike, although some are needlelike on terminal shoots and very small, only one-sixteenth to one-eighth of an inch long. Leaves are keeled and glandular on the back and are dark blue green, turning brown in the second year, but remaining for several years. Cones are erect, about one-quarter of an inch in diameter; globose, semifleshy, and bluish purple when mature, turning brown later. There are one to three seeds per fertile scale (fig. 2). Seeds are about one-eighth of an inch long or smaller, rounded, slightly compressed, and light brown with winged margins about as broad as the seed but darker in color. There are about 460,000 seeds per pound.

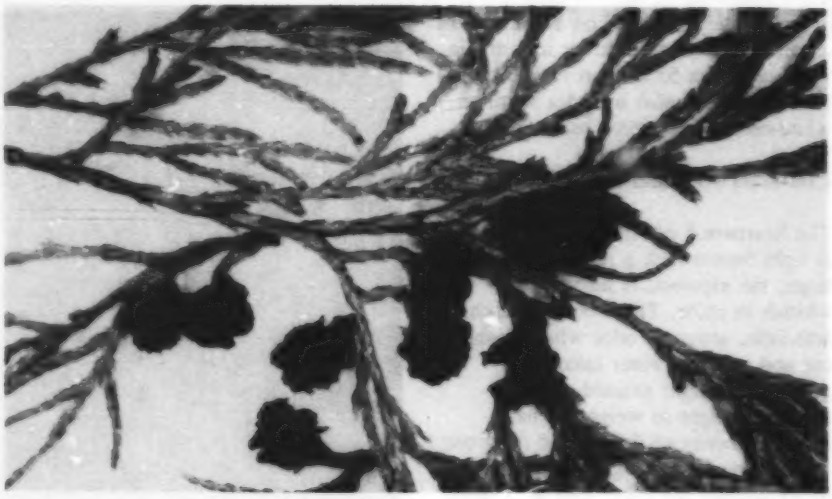

Figure 2—Leaf and cone characteristics.

Bark is generally thin over the entire tree, but on old mature trees it is from three-quarters of an inch to 1 inch thick (fig. 3). It varies in color from ash gray to light reddish brown on the outside and is usually a bright cinnamon brown underneath. On small branches and young trees, the bark surface is smooth, although it may be slightly furrowed by long shallow fissures. On old trees, the bark is irregularly furrowed into narrow, flat connected ridges that separate into loose, elongated, platelike scales that peel off in long fibrous strips.

Common Names

Atlantic white-cedar is also called southern white-cedar, white-cedar, juniper, swamp-cedar, post cedar, and false-cypress.

Related Commercial Species

Northern white-cedar (*Thuja occidentalis*) and sometimes eastern redcedar (*Juniperus virginiana*) are included in the reported totals of sawtimber and wood of Atlantic white-cedar. Northern white-cedar is found primarily in the northern part of the range of Atlantic white-cedar.

Supply

In 1940 a rough estimate of the total volume of Atlantic white-cedar was put at 300 million board feet. No current estimates of the total volume of this species' growing stock are available today. In forest inventories it is not separated as a single species in the northeastern part of its range but is lumped with other less commercially important softwoods. In the southern part of its range, however, it has been reported as a single species. Forest survey data available at the Southeastern Forest Experiment Station in 1980 showed the growing stock (trees 5 inches and larger in diameter) of Atlantic white-cedar in North Carolina, South Carolina, Florida, and Virginia to be 103.7 million cubic feet, which is equivalent to 406.1 million board feet, or 1.44 million cords. These States, as well as New Jersey, have been the major supply areas for Atlantic white-cedar in the past.

Production

Estimates of the current annual cut of Atlantic white-cedar are not available. Statistics on wood used in various manufacturing industries indicate that

approximately 130 million board feet of eastern cedar were used by industry in 1980, up from 55 million in 1969. This total, however, also includes northern white-cedar and eastern redcedar.

Characteristics and Properties

The heartwood of Atlantic white-cedar is light brown with a reddish or pinkish tinge; the sapwood is narrow and whitish in color. The wood has a characteristic, aromatic odor when freshly cut and a faintly bitter taste. It is generally straight grained, fine textured, and light in weight. It has a specific gravity of 0.31 based on green volume, ovendry weight, and a density of 23 pounds per cubic foot at 12 percent moisture. The wood is moderately soft, weak in bending, weak in endwise compression, and low in shock resistance. It splits easily, finishes smoothly, holds paint well, shrinks little, works easily with tools, and is very resistant to decay.

Growth rings in Atlantic white-cedar are distinct but not conspicuous. Transition from earlywood to latewood within one growth increment is gradual; the earlywood zone is narrow and somewhat denser than the latewood. The wood fibers (tracheids) have an average diameter of between 25 to 35 microns with an average length of 3.3 millimeters. Atlantic white-cedar wood is anatomically very similar to that of northern white-cedar.

Principal Uses

During the first 50 years of this century, this species was used principally for poles, shingles, woodenware (tubs, pails, churns), and lumber. The lumber was used for planing mill products, such as siding molding, and for water tanks, boat construction, boxes and crates, and fencing. A survey of wood used in manufacturing industries indicates that the greatest volume of this species together with northern white-cedar is used for cooperage, wood

Figure 3—Bark of Atlantic white-cedar.

household furniture, boatbuilding, fencing, and industrial millwork.

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